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Maine Agricultural Experiment Station

BULLETIN No. 88. DECEMBER, 1902.

FINANCES, METEOROLOGY, INDEX.

This Bulletin contains the newspaper bulletins published in 1902, the summary of the meteorological observations, the Report of the Treasurer, and the index for the bulletins issued in 1902. Bulletins 79 to 88 make up the Eighteenth Annual Report of the Station.

Requests for bulletins should be addressed to the
Agricultural Experiment Station,
Orono, Maine.

MAINE

AGRICULTURAL EXPERIMENT STATION,

ORONO, MAINE.

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NEWSPAPER BULLETINS PUBLISHED IN 1902.

CHAS. D. WOODS.

Whenever there is matter of importance which we wish to bring promptly to the attention of the people of the State, we make as clear and concise a statement as possible in the style and type of a newspaper column and mail it as a "Special Newspaper Bulletin" to all the press of the Station exchange mailing list. These newspaper bulletins are quite generally printed by the papers and the Station is under obligations to the press for this opportunity of specially and promptly being put in touch with the people.

During the year the Station has issued several special newspaper bulletins on miscellaneous subjects and 12 monthly meteorological bulletins. The results of the meteorological observations thus reported are summarized beyond. The matter of 6 of the newspaper bulletins has not appeared in any of the regular bulletins of the Station and is therefore here reprinted as a matter of permanent record.

FRESH FISH AS MANURE.

A correspondent at Livermore Centre wrote the Maine Experiment Station asking for information as to the value of fresh fish as a fertilizer. The following reply was sent:

"Fresh fish and fish waste have been used for manure by farmers living along the coast for generations and there is no question as to their fertilizing value for all farm crops. Fish is not, however, a complete fertilizer and its chief value is due to the nitrogen it contains. In the fresh unground fish the phosphoric acid of the bones is not immediately available to plants but becomes so in time when mixed with the soil. Fish contains practically no potash and unless this ingredient is supplied either in the form of potash salts or wood ashes the land soon becomes exhausted of its available supply.

"Dried fish has an average composition of water 12 per cent, nitrogent 7.25 per cent and phosphoric acid 8.25 per cent. The fresh fish would probably contain 50 to 60 per cent of water and proportionately less nitrogen and phosphoric acid. Unless it could be bought very cheaply it would not be an economical fertilizer in your locality, as you would have to pay freight on a large amount of water having no manurial value.

"Tankage can be obtained from the Portland Rendering Company, Portland, Me., guaranteed to carry 6 per cent nitrogen and 14 per cent phosphoric acid, for about $20 per ton. This mixed with muriate of potash, about 200 tbs. muriate to 1,800 tbs. tankage, and about 1,000 tbs. of the mixture applied to the acre would be good and economical manuring for grass or orchard land. The muriate can be obtained of Kendall & Whitney, Portland, or the Sagadahoc Fertilizer Co., Bowdoinham, Me. Ashes could be used with the tankage instead of the muriate, applying about 800 tbs. tankage and 1,500 tbs. ashes to the acre. The ashes should not be mixed with the tankage until time to apply to the land and should be worked into the soil for best results."

THE ANGORA GOAT.

Experience of the Maine Agricultural Experiment Station.

The first problem we met was suitable fencing. We soon found that while they do not jump they are good climbers, and that they will go over any fence the top of which they can reach with the fore feet. The horns on some of the ewes point backward in a V shape. In the case of a woven wire fence with square openings, even with 4 inch mesh, they will push their heads through the openings and get hung by their horns. With this kind of a fence it was necessary to visit them two or three times a day to release the prisoners. The Ellwood poultry fence (not poultry netting) of the American Fence Company, with small diamond shaped openings, has proven perfectly satisfactory. It costs about a third more than the ordinary woven wire fence of equal height.

In 1901 we gave them too extensive a range and they did but little clearing up. In May, 1902, six ewes, one buck and five kids were put in an acre of young woodland of a mixed growth, most of the trees three to six inches in diameter. There was quite a thick growth of underbrush. The small underbrush of birch, maple, hazel bush, etc., have been cleaned up so that where there are no alders or evergreens the ground under the trees is as clean as though it had been burned over. Sweet fern they do not like very well but they have cleaned all of the hardhack out of this piece. Ferns and brakes have been eaten to some extent. They have eaten the leaves and young sprigs of bushes in preference to grass. Birches two inches or more in diameter they have not injured but they have stripped the bark from every maple. Even maple trees six inches in diameter have been thus killed. We have found them to be fond of the bark of apple trees, even eating the bark from old trees.

To clean up birch or evergreen wood land they have proven very effective. There has been practically no cost for the summer's keeping. The twelve goats have been kept without other food on one acre of young wood land. They have required no care other than an occasional visit to see that they are all right and that they have water. Salt was given occasionally.

THE MANAGEMENT OF RASPBERRIES AND BLACKBERRIES.

A correspondent asks the Maine Experiment Station for information as to the time for pruning and transplanting raspberries and blackberries. In reply the following suggestions were made.

"The ideal treatment for raspberries and blackberries is to pinch them back at intervals during the summer and thus secure strong, sturdy bushes 3½ to 4 feet high, with laterals 1 to 1½ feet long, rather than to practice severe heading back after the plants have become long and 'leggy.' If, however, as is frequently the case even in the best managed gardens, the plants are at this season making vigorous growth which may not mature, they should at once be cut back to the desired height and the canes will harden before cold weather. Many prefer to cut back the bushes in the spring, after the extent of winter-killing is determined. Thinning the canes, which should always be practiced, may be done at any time during the season. In general one-half, or more, of the young canes which appear should be cut out.

"Blackberry and raspberry bushes may be transplanted this fall if the work is done immediately, but better results are usually obtained from spring planting. Currants, on the other hand, have given rather better results from fall setting."

APPLES AND PLUMS FOR CENTRAL MAINE.

A correspondent at Sandy Point, asked the Maine Experiment Station for information as to varieties of apples and plums to plant for market. The following reply was sent:

"The question of varieties is largely an individual matter, and depends upon soil, location, markets and personal preferences. For home use and certain local markets, as the summer resorts, it is well to have a succession of varieties lasting through the season, and the list should include the choicest dessert varieties. For the ordinary village markets and for distant shipment, however, plant a few standard varieties which have a recognized market value. Such varieties are usually highly colored, good keepers and of good quality.

"In general, for the section of the State in which you are located—Waldo and adjoining counties—the following apples would be suitable for the first purpose mentioned: Oldenburg, Williams' Favorite, Alexander, Munson Sweet, Garden Royal, Starkey (not Stark), Gravenstein, Fameuse, Northern Spy, Tallman, Baldwin.

"For shipment Gravenstein, Baldwin, and Tallman make a good trio. Ben Davis is a handsome apple and a good shipper, but the quality is poor.

"Of plums, Reine Claude (Bavay's Green Gage) stands easily at the head for market purposes and it is of excellent quality. Burbank and Arctic (Mooers' Arctic) are remarkably vigorous and productive, but of second quality. McLaughlin is one of the choicest for home use."

EXPERIMENTS WITH CLOVER.

In co-operation with the United States department of agriculture the Maine Agricultural Experiment Station has during the past season conducted a comparative study of red clover obtained from different parts of the world. The object of this study is to determine, if possible, the best source from which to obtain seed for general farm purposes. To this end the questions considered were: rate and per cent of germination; date of blooming and consequent earliness of crop; date of cutting; yield per acre; general condition of the stand.

Some striking differences were noted, but of course no general conclusions can be drawn from one season's work. Seed was sown May 19 on 58 plots of two square rods each. The first bloom was noted August 2, on plots with the seed from England, Russia, Nebraska, Tennessee, Iowa, and Missouri. The first plots ready for harvest (cut just in bloom) were those from Indiana and one lot from Bohemia. The largest yields were obtained, in the order given, from plots with seed from Bohemia, Indiana, Minnesota, Wisconsin, Brittany, Ohio. Plants from American seed were invariably very hairy while those from European seed were almost as invariably smooth.

The experiment will be continued through another growing season and the results will be given in detail in a station bulletin.

LOW GRADE COTTONSEED MEAL.

Within the past three weeks (December, 1902) several samples of low grade cottonseed meal have been sent to the Maine Agricultural Experiment Station for analysis. These came from widely separated parts of the State, but were all from the jobbing house of Oscar Holway and Company of Auburn. These goods were differently branded and two lots carried no guaranteed analysis. The retailers were notified of the quality of the goods and their sale stopped. This meal carried from 24 to 34 per cent protein and is the first low grade goods that has come to my attention for nearly two years. As directed by law I have reported the violations to the Commissioner of Agriculture who is following the matter up.

Dealers or consumers who have dark colored cottonseed meal or meal containing black specks should, for their protection, send a sample to the Station for analysis. The sample is best sent by mail in a tin box—an old spice box answers nicely. A description of the goods including a copy of the guaranteed analysis should be sent with the sample. The analysis will be promptly made and reported free of charge.

Residents of the State are again reminded that the Station is always ready to make free analyses of samples of all kinds of concentrated feeding stuffs sent by them. By availing themselves of this, which has been a standing offer for six years, users and handlers of feeding stuffs will have a protection from low grade goods such as can be obtained in no other way.

METEOROLOGICAL OBSERVATIONS.

Lat. 44° 54′ 2″ N. Lon. 68° 40′ 11″ W. Elevation 150 feet.

The instruments used at this Station are the same as those used in preceding years, and include: Wet and dry bulb thermometers; maximum and minimum thermometers; thermograph; rain-gauge; self-recording anemometer, vane, and barometer. The observations at Orono now form an almost unbroken record of thirty-four years.

In this section of the State the winter of 1901-2 was more than two degrees warmer than the average, while the snowfall was only about three-fourths of the usual amount. March was remarkably warm, with almost no snow after the middle of the month. This soon disappeared and the indications pointed towards an early spring. May, however, proved cool with much cloudiness. June, also, was cloudy and the rainfall was nearly double the normal. Frequent showers, much cloudiness, and a low temperature characterized the growing season throughout the greater portion of the State. Much of the sweet corn raised for canning purposes failed to mature and in many sections grain lodged badly. From an agricultural stand-point, the season as a whole was unfavorable.

METEOROLOGICAL SUMMARY FOR 1902.

Observations Made at the Maine Experiment Station.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean.	Total.
Highest barometer	30.40	30.20	30.40	30.07	30.25	30.18	30.08	30.05	30.25	30.33	30.26	30.58	30.25	.....
Lowest barometer	28.81	28.67	29.16	29.06	29.30	29.12	29.46	29.40	29.54	29.10	29.25	29.36	29.19	.....
Mean barometer.	29.81	29.60	29.54	29.71	29.79	29.62	29.80	29.76	29.92	29.82	29.84	29.85	29.75	.....
Highest temperature	47°.0	52°.0	62°.0	75°.0	83°.0	84°.0	87°.0	85°.0	82°.0	75°.0	58°.0	53°.0	.. ..	.....
Lowest temperature......	-16°.0	-15°.0	-2°.0	27°.0	28°.0	34°.0	43°.0	39°.0	30°.0	17°.0	18°.0	-20°.0	... .	.....
Mean temperature.......	17°.32	22°.11	36°.90	43°.40	50°.61	56°.80	64°.13	63°.07	59°.47	47°.26	37°.16	17°.13	42°.11	.....
Mean temperature for 34 years.	16°.05	19°.22	27°.81	40°.59	52°.28	61°.92	66°.97	65°.07	57°.23	46°.06	34°.25	20°.62	42°.34	.....
Total precipitation in inches	3.65	1.80	8.89	2.94	2.77	6.03	1.81	4.96	1.94	5.04	1.76	4.77	.. ...	46.36
Mean precipitation for 34 years..........	4.34	3.99	4.44	2.90	3.55	3.65	3.25	3.62	3.34	3.97	4 28	3.87	... .	45.20
No. of days with precip. of .01 in. or more	10	8	19	13	10	16	8	10	8	13	7	11	....	133
Snow fall in inches	13.0	18.0	14.0	....	....	....	....	....	... .	....	3.0	24.5	... .	72.5
Average snow fall for 34 years.	23.0	21.5	16.8	5.2	....	....	....	... .	....	....	8.0	17.2	....	91.7
Number of clear days	12	16	10	13	11	9	9	5	12	8	9	13	......	127
Number of fair days	4	2	5	4	5	6	10	11	6	6	5	4	....	68
Number of cloudy days	15	10	16	13	15	15	12	15	12	17	16	14	....	170
Total movement of wind in miles	6718	6168	7655	5974	6911	5640	4093	4784	4292	6689	5042	5218	....	......

Monthly and Annual Precipitation (as rain) for the Year 1902.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Bar Harbor	4.05	3.83	14.37	3.07	2.52	7.60	1.75	3.24	2.50	5.11	1.79	7.12	56.95
Belfast	3.37	2.59	12.70	3.00	1.85	6.38	1.52	4.62	1.84	5.05	1.34	4.90	49.16
Bemis	.....	1.52	4.82	....	4.15	4.63	1.02	3.71	2.62				....
Carmel	1.75	2.42	10.97	2.51	2.94	5.57	4.02	3.08	2.06	3.71	2.02	2.45	43.50
Cornish	4.18	2.61	8.10	6.56	3.05	4.92	3.24	8.26	6.68	6.80	1.70	7.06	63.16
Eastport	3.41	3.06	9.11	2.16	3.85	2.51	1.05	3.23	2.43	3.36	1.47	5.77	41.41
Fairfield	2.25	1.54	7.76	2.41	2.54	4.01	2.22	4.06	1.86	4.01	1.03	4.68	38.40
Farmington	3.06	2 32	8.43	3.67	5.16	5.28	1.93	3.34	3.60	4.68	1.19	4.31	46.97
Fort Fairfield	....	....	2.62	0.57	2.10	4.38	2.99	2.55	3.10	1.75	0.95	....	....
Gardiner	2.67	1.70	10.33	3.71	2.01	4.52	2.07	4.46	3.22	4 90	1.21	5.35	46.15
Houlton	....	....	....	1.25	2.87	8.06	3.28	4.09	4.10	4.73	1.88	4.62	....
Kineo	2.15	3.60	4.73	2.65	4.67	6.15	4.03	3.01	5.46	....	0.81	2.01	....
Lewiston	3.04	3.01	8.96	4.37	2.67	5.21	2.02	3.52	3.70	5.07	1.45	5.26	48.28
Mayfield	3.21	3.60	9.50	4.16	3 40	7.39	2.95	6.36	4.33	5.83	1.65	4.12	56.50
North Bridgton	4.36	2.55	8.21	4.67	3.98	5.50	2.66	4.21	4.11	5.72	1.78	6.27	54.02
Orono	3.65	1.80	8.89	2.94	2.77	6.03	1.81	4.96	1.94	5.04	1.76	4.77	46.36
Patten	....	....	....	1.00	3.52	6.20	3.00	3.80	4.30	4.80	....	2.20	....
Portland	2.73	3.34	8.76	3.97	2.17	3.78	2.21	4.36	4.08	4.95	0.86	6.54	47.75
Rumford Falls	1.76	2.19	3.12	3.31	5.32	4.45	2.31	3.86	3.88	4.14	1.47	4 60	40.41
Van Buren	....	....	....	2.17	4.42	6.54	3.48	2.69	5.64	5.51	2.24	2.75	....
Vanceboro	....	....	....	....	....	4.05	2.26	2.54	2.60	5.97	0.90	2.70	....

With the exception of readings from the Orono station, the above table is compiled from the monthly bulletins of the U. S. Weather Bureau.

REPORT OF THE TREASURER.

Maine Agricultural Experiment Station in account with the United States appropriation, 1901-1902.

Dr.

To receipts from the Treasurer of the United States as per appropriation for the fiscal year ending June 30, 1902, as per act of Congress approved March 2, 1887		$15,000 00

Cr.

By salaries:		
(a) Director and administration officers	$2,418 12	
(b) Scientific staff	3,507 66	
(c) Assistants to scientific staff	1,893 43	
(d) Special and temporary services	63 31	
Total		7,882 52
Labor:		
(a) Monthly employees	$450 00	
(b) Daily employees	1,331 20	
(c) Hourly employees	6 95	
Total		1,788 15
Publications		245 00
Postage and stationery		243 65
Freight and express		229 75
Heat, light and water		953 09
Chemical supplies:		
(a) Chemicals	$279 68	
(b) Other supplies	50 52	
Total		330 20
Seeds, plants and sundry supplies:		
(a) Agricultural	$70 60	
(b) Horticultural	213 76	
(e) Miscellaneous	125 13	
Total		409 49

Fertilizers		$157 17
Feeding stuffs		1,000 33
Library		218 09
Tools, implements and machinery		116 63
Furniture and fixtures		113 26
Scientific apparatus		103 64
Live stock:		
(a) Horses	$50 00	
(e) Poultry	118 35	
(f) Sundries	80 15	
Total		248 50
Contingent expenses		15 00
Traveling expenses		259 62
Buildings and repairs		685 91
Total		$15,000 00

ISAIAH K. STETSON, *Treasurer.*

I, the undersigned, duly appointed Auditor of the Corporation, do hereby certify that I have examined the books of the Maine Agricultural Experiment Station for the fiscal year ending June 30, 1902, that I have found the same well kept and classified as above, and that the receipts for the year from the Treasurer of the United States are shown to have been $15,000.00, and the corresponding disbursements, $15,000.00; for all of which proper vouchers are on file and have been examined by me and found correct.

And I further certify that the expenditures have been solely for the purposes set forth in the act of Congress approved March 2, 1887.

GEO. E. FELLOWS, *Auditor.*

Maine Agricultural Experiment Station in account with "General Account" for the year ending June 30, 1902.

DR.

To balance from 1901-1902	$493 05	
Sales of produce, etc	3,115 06	$3,608 11

CR.

By salaries	$1,000 00	
Labor	980 42	
Feeding stuffs	500 00	
Postage and stationery	100 00	
Buildings and repairs	254 20	
Balance to 1902-3 account	773 49	3,608 11

INDEX TO EXPERIMENT STATION REPORT.

PAGE

- American apples, good varieties 88
- Anaphothrips striata 97
- Angora goats 214
- Apples, catalogue of hardiest varieties 83
  - good American varieties 88
    - Arctic 89
    - Boiken 89
    - Doctor 89
    - Hurlbut 89
    - Milding 89
    - Munson Sweet 89
    - Northwestern Greening 90
    - Rolfe 90
    - Shiawassee 90
    - Wealthy 90
    - Westfield 90
    - York Imperial 91
  - keeping qualities 94
  - Maine seedlings 91
    - Aroostook 91
    - Dudley 91
    - Rolfe 92
    - Stowe 92
  - valuable Russian varieties 85
    - Alexander 86
    - Anisim 86
    - Arabka 86
    - Borsdorf 86
    - Cross 87
    - Green Crimean 87
    - Hibernal 87
    - Longfield 87
    - Pink Anis 87
    - Prolific Sweeting 88
    - Russian Gravenstein 88
    - Yellow Transparent 88
  - varieties for Central Maine 216
    - hardy in Maine 82
- Arsenate of lead 198

PAGE
Arsenical insecticides 199
Arsenic, soluble, in Paris green 198
Barley 130
Blackberries, management 215
Black Death 199
Brans, analyses 49, 51
Breeding for egg production 26
Bug Death 201
Bulletins published in 1902 213
By-products of the oat 59
Cereal breakfast foods 129
  grains 129
Cereals, prepared 139
Chickens, fattening with meat meal 16
  feeding for growth 9
  feeding with skim-milk 15
  relation of age to fattening 14
Clover experiments 216
Cockerels, feeding tests 10
Condimental foods 62
Coops vs. house and yard 9
Corn 130
  breakfast foods, average composition 151
  breakfast foods, average cost 151
  preparations 140
Cottonseed meal 56
  analyses 43, 44
  low grade 217
Egg cases, light and dark 18
  production, breeding for 26
  records 27, 33, 37
Eggs, continuance of fertility 24
  fertility in 22
  for incubation, effects of light and air 18
  effects of temperature 20
  resting after transit 21
  relation of shape to fertility 25
  treatment before incubation 18
English Bug Compound 199
Feeding chickens for growth 9
  stuffs, analyses 43
    inspection 41
    law, requirements of 41
      workings of 60
Feeds low in protein 56
Fence, wire, for goats 214
Fertilizer analyses 73, 155
  inspection 65, 153
  law, chief provisions 80

PAGE

Fertilizers, constituents 67
guarantees and analyses..................... 162, 168
manufacturer's samples 72
valuation 69
Fertilizing ingredients, trade values...................... 70
Fertility of eggs.. 22
relation to shape......................... 25
continuance 24
Fish as manure.. 213
Food frauds and humbugs.................................. 61
nutrients and their uses........................... 55
Foods, cereal breakfast.................................... 129
condimental 62
Fungicides for potatoes.................................... 197
notes on 203
Gluten meals, analyses.................................... 45
and feeds 57
preparations, analyses 133
Goats, Angora 214
Grass thrips, circulating system........................... 111
description 97
digestive system 103
excretory system 104
eyes 109
larva 101
habits 112
life history 100
mouth parts 101
muscular system 105
nervous system 108
pupa 101
reproductory system 110
respiratory system 111
salivary glands 104
treatment 128
Hammond's Slug Shot 201
Hens, breeding for egg production 26
Hominy, analyses 133, 137
Incubation, experiments in 18
treatment of eggs 18
Insecticides, effect on quality of potatoes 207
field notes 205
for potatoes 197
Inspection of feeding stuffs 41
of fertilizers 65, 153
Kno-bug 199
Light Brahma hens, egg production 28, 35
Linseed meals 58

PAGE
Malted foods, analyses 137
  discussion 147
Meat meal in chicken fattening 16
  meals and scraps 58
Meteorological observations 218
Mixed feed 59
Newspaper bulletins 213
Nutrients of food and their uses 55
Oat breakfast foods, average composition and cost 151
  feeds, analyses 47
  meals 141
  meal, analyses 133
  smut and its prevention 210
Oats 131
  by-products 59
  treatment of seed 212
Orchard notes 81
Paris green for potatoes 197
Paris green, purity 197
Plymouth Rock hens, egg production 27, 33, 37
Plums, varieties for central Maine 216
Potato insecticides and fungicides 197
Potatoes, quality affected by spraying 207
  yield of experiment plots 207, 208
Poultry experiments in 1900 and 1901 9
Pullets, egg records 31, 36
Quick Death 199
Raspberries, management 215
Red albumen 62
Rice 131
Rolled oats, analyses 133, 137
Russian apples, most valuable varieties 85
Skim-milk as chicken food 15
Smuts of cereals 210
Starch content of sprayed potatoes 207
Tankage 214
Thrips striata 97
Trade values of fertilizing ingredients 70
Treasurer's report 221
Trillium grandiflorum, variation in 169
Valuation of fertilizers 69
Weather report 218
Wheat 131
  bran and middlings 59
  breakfast foods 133, 137
  breakfast foods, average cost 151
  preparations, discussion 142
White Wyandotte hens, egg production 28, 34, 38